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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

January 23, 2012

TO: Internal File

THRU: James Owen, Team Lead)^{co}

FROM: Amanda Daniels, Environmental Scientist II AD

RE: Excess Spoils Disposal Area #2 Amendment, Sunnyside Cogeneration Associates, Sunnyside Refuse/Slurry, Permit C/007/0035, Task ID #3992

SUMMARY:

On August 18th, 2011, the Division of Oil, Gas and Mining (the Division) received an amendment to the Sunnyside Refuse/Slurry MRP. The amendment proposes to expand the Excess Spoils Disposal Area #2. The amendment outlines a series of phases to be implemented to facilitate the reclamation of an existing portion of the refuse area as expansion occurs on an adjacent area.

In a memo dated October 6, 2011, the Division provided a list of hydrologic deficiencies that were identified after a review of the amendment. On December 21, 2011, the Division received a response to these deficiencies. The following are the hydrologic deficiencies identified in the October 6th review:

R645-746.200- *The Permittee should provide a clearer narrative/description within the text of the MRP that identifies when the various hydrologic components (i.e. the two diversion ditches and the 18" CMP culvert) will be installed. The narrative should also identify what the "existing surface diversion" is that is referenced in the 2nd paragraph on page 6 of Appendix 9-7. The text should reference a map/figure that depicts the phases of the Excess Spoil Pile #2 expansion along with the associated hydrologic features.*

R645-301-746.200- *The Permittee must provide the following additional design information for the proposed 18" RCP culvert referenced on page 6 of Appendix 9-7:*

- 1) *A map/figure that clearly depicts the location of the proposed culvert. The culvert should be labeled and easily identified.*
- 2) *The supporting design/sizing calculations for a refuse pile/permanent diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.*

- 3) *The Permittee must provide detailed design drawings for the proposed culvert. The drawings must provide the culverts inlet and outlet design as well as any other design consideration that may be necessary depending on the peak storm flow generated from the design storm (i.e. energy dissipation/rip rap detail etc).*

R645-301-746.200-*The Permittee must provide the following additional design information for the proposed "perimeter diversion ditches" referenced on page 6 of Appendix 9-7:*

- 1) *A map/figure that clearly depicts the locations of the proposed ditches and where they report.*
- 2) *The supporting design/sizing calculations for a refuse pile diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.*
- 3) *Detailed design drawings for the proposed ditches (i.e. a typical cross-section).*

R645-301-760-*The Permittee must revise the hydrologic reclamation plan to address the "additional perimeter diversion ditches" referenced on page 6 of the Appendix 9-7. The revision in section 10.6 Drainage Control should discuss whether these diversions will be permanently retained following reclamation of the site. If they are to be retained following reclamation, the Permittee should provide the supporting design/sizing calculations for a permanent diversion. Additionally, the revisions should discuss the proposed RCP culvert that is to be left permanently following reclamation.*

This memo addresses the response to these deficiencies.

TECHNICAL ANALYSIS:

OPERATION PLAN

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Refuse Piles

The amendment meets the requirements of the State of Utah R645-Coal Mining Rules. The amendment provides the necessary diversion information for the proposed hydrologic components of the Excess Spoil Pile #2 expansions.

Findings:

The amendment meets the Refuse Pile requirements of the State of Utah R645-Coal Mining Rules.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Diversions: General

On page 6 of Appendix 9-7, the Permittee discusses the hydrologic components of the proposed expansion of Excess Spoil Pile #1. During the connection of Phase 2 to Phase 1, the Permittee discusses how a permanent 18" CMP culvert, (Past-C5) will be installed in an existing ditch (CW-D7) *"Upon the connection of Phase 2 into Phase 1... Past-C5 will be installed in a portion of the existing CW-D7 going southwesterly under the Phase 2 pile."* In addition, perimeter ditches Past-D10 and Bor-D4 will be constructed through Phases 2 and 3.

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Findings:

The amendment meets the Diversion requirements of the State of Utah R645-Coal Mining Rules. Blow lists how previous deficiencies in this area were met:

R645-746.200- The Permittee clearly described when the two new diversion ditches and the 18" CMP culvert will be installed. Ditches Past-D10 will be constructed in segments throughout Phase 2 and Bor-D4 will be constructed in Phase 3. The 18" CMP culvert, Past-C5 will be installed upon the completion of Phase 2. The existing surface diversions are clearly identified as ditches CW-D7 and Past-D1. Plates 9-8E and 9-8F identify these features.

R645-301-746.200- The Permittee has provided the following additional design information for the proposed 18" RCP culvert, Past-C5.

- 1) Past-C5 is clearly depicted in plates 9-8E and 9-8F.
- 2) Supporting design and sizing calculations for a permanent diversion utilizing a 100-year, 6 hour event is included on page 14 of Appendix 9-7.
- 3) Page 6 of appendix 9-7 describes design information for handling the peak storm from a 100-year, 6 hour event. Including 6" of riprap at the outlet.

R645-301-746.200- The Permittee has provided additional design information for the proposed perimeter diversion ditches, Past-D10 and Bor-D4.

- 4) The proposed ditches are clearly depicted in plates 9-8E and 9-8F.
- 5) Supporting design and sizing calculations for a permanent diversion utilizing a 100-year, 6 hour event is included on page 12-13 of Appendix 9-7.
- 6) Page 6 of appendix 9-7 describes design information for handling the peak storm from a 100-year, 6 hour event. Including 6" of riprap for slopes of >5% for Past-D10.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

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Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The Permittee has stated that the 18" RCP culvert, Past-C5 will be left in place after reclamation and is included in section 10.6 Drainage Control. Supporting calculations are included on pages 12-14 of Appendix 9-7

Findings:

The amendment meets the Hydrologic Reclamation Plan requirements of the State of Utah R645-Coal Mining Rules. Blow lists how previous deficiencies in this area were met:

R645-301-760- Section 10.6, Drainage Control, has been revised to include the permanent 18" RCP culvert. Supporting calculations are included on pages 12-14 of Appendix 9-7.

RECOMMENDATIONS:

The amendment should be approved at this time. The deficiencies identified herein have been addressed.